



No. Target file Definition

Match% Over. INIT OPT

2 SmW_H_ORF.aa

90.6 776 529 3616

	10	20	30	40	50	60
SmW_R_AA	MLARAERPRPGPRPPVFPFPPPLSLLLLAISAPVCGRVPRSPRTSLP SEADSYLT					
	: : : : : :					
SmW_H_ORF.aa	MPASAARPRPGPGOPTASPF——PLLLAVLSGPVSGRVPRSPRTSLP SEADSLT					
	10	20	30	40	50	
	70	80	90	100	110	120
SmW_R_AA	RFAASHTYNYSALLVDPASHTLYVGARDSIFALTLPFSGERPRRIDWMPETHRQNGRKK					
	: : : : : :					
SmW_H_ORF.aa	RFAVPHTYNYSVLLVDPASHTLYVGARDTIFALSFPFSGERPRRIDWMPETHRQNGRKK					
	60	70	80	90	100	110
	130	140	150	160	170	180
SmW_R_AA	GKKEDECHNFQILAIVNASHLLTCGTAFDPKCGVIDVSSFQQVERLESGRGKCPFEPA					
	: : : : : :					
SmW_H_ORF.aa	GKKEDECHNFQILAIVNASHLLTCGTAFDPKCGVIDVSRFQQVERLESGRGKCPFEPA					
	120	130	140	150	160	170
	190	200	210	220	230	240
SmW_R_AA	QRSAAVMAGGVLYTATVKNFLGTEPIISRAVGRAEDWIRTETLSSNLNAPAFVAANVLSP					
	: : : : : :					
SmW_H_ORF.aa	QRSAAVMAGGVLYAATVKNYLGTETPIITRAVGRAEDWIRTETLPSNLNAPAFVAANVLSP					
	180	190	200	210	220	230
	250	260	270	280	290	300
SmW_R_AA	AEWGDEDGDEIFFFTETSRVLSYERIKVPRVARVCAEDLGGRKTLQQRWTTFLKADL					
	: : : : : :					
SmW_H_ORF.aa	AEWGDEDGDEIYFFFTETSRVLSYERIKVPRVARVCAEDLGGRKTLQQRWTTFLKADL					
	240	250	260	270	280	290
	310	320	330	340	350	360
SmW_R_AA	LCPGPENGRASGVLOAMAEPRPQAGTPIFYGIFSSQWEGAAISAVCAFRPQDIRAVLN					
	: : : : : :					
SmW_H_ORF.aa	LCPGPENGRASVLDQVAVLRPELGAGTPIFYGIFSSQWEGATISAVCAFRPQDIRAVLN					
	300	310	320	330	340	350
	370	380	390	400	410	420
SmW_R_AA	GPFRELKHDNRGLPVMNDVPPRPGECIANNMQLQFGSSLSLPDRVLTFIROHPLND					
	: : : : : :					
SmW_H_ORF.aa	GPFRELKHDNRGLPVVDNDVPPRPGECITNNMQLRHFGSSLSLPDRVLTFIROHPLND					

Group of human

	360	370	380	390	400	410
	430	440	450	460	470	480
SmW_R_AA	RPVFPADGRPLLVTDTAYLRVVAHRVTSLSQKEYDVLVLGTEDGHLHRAVR	IQAQLSVL				
					
SmW_H_ORF. aa	RPVFPADGHPPLLVTDTAYLRVVAHRVTSLSQKEYDVLVLGTEDGHLHRAVR	IQAQLSVL				
	420	430	440	450	460	470
	490	500	510	520	530	540
SmW_R_AA	EDLALFPEPQPVESMKLYHDMLLVGSHTVTVNTSNGRLQSCSEC	ILAQDPVCAWSFR				
					
SmW_H_ORF. aa	EDLALFPEPQPVENIKLYHSMLLVGSRTVTVNTTNGRLQSCSEC	ILAQDPVCAWSFR				
	480	490	500	510	520	530
	550	560	570	580	590	600
SmW_R_AA	LDACVAHAGEHRGMVQDI	ESADVSSLCPKEPGEHPVVFVPVATVGHVVLPCSPSSAWAS				
					
SmW_H_ORF. aa	LDECVAHAGEHRGLVQDI	ESADVSSLCPKEPGERPVVFVPVATAAHVVLPCSPSSAWAS				
	540	550	560	570	580	590
	610	620	630	640	650	660
SmW_R_AA	CVVHQPSGVTALTPRRDGLVVVTPQAMGAYACECQEGGAARVVAAYSLVWGSQRGPSNR					
					
SmW_H_ORF. aa	CVVHQPSGVTALTPRRDGLVVVTPQAMGAYACECQEGGAHVVAAYSLVWGSQRDAPSR					
	600	610	620	630	640	650
	670	680	690	700	710	720
SmW_R_AA	AHTVWAGLVGFLLGVLAASTLILLGRQRRRRQRELLARDKVGLDLGAPPSGTTSYSQ					
	... X:					
SmW_H_ORF. aa	AHT-VBAGLAGFLLGILAASTLILLGRQRRRRQRELLARDKVGLDLGAPPSGTTSYSQ					
	660	670	680	690	700	710
	730	740	750	760	770	
SmW_R_AA	DPPSPSPEDERLPLALGKRGSGFGGFPFLDSCPSPAHIRLTGAPLATCDETSI					
X					
SmW_H_ORF. aa	DPPSPSPEDERLPLALAKRGSGFGGFPFLDPCPSPAHIRLTGAPLATCDETSI					
	720	730	740	750	760	770

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Appendix 4

encoding Semaphorin W protein which comprises the amino acid sequence shown in SEQ ID NO: 3, or (b) a gene encoding a protein which comprises an amino acid sequence wherein one or more amino acids are deleted, substituted and/or added in the above amino acid sequence shown in SEQ ID NO: 3 and which protein inhibits neurite outgrowth. The 2nd embodiment of the present invention is (c) a gene comprising Semaphorin W DNA which comprises the base sequence shown in SEQ ID NO: 1 or 2, or (d) a gene comprising DNA which hybridizes under stringent conditions to the above DNA comprising the base sequence shown in SEQ ID NO: 1 or 2 and which encodes a protein inhibiting neurite outgrowth, or (e) a gene comprising DNA of the above item (d) which comprises the base sequence shown in SEQ ID NO: 4 or 5 and/or the base sequence shown in SEQ ID NO: 10. These genes are explained below in order.

1) Gene Encoding Semaphorin W (Semaphorin W Gene)

Of the above-mentioned genes, "a gene encoding Semaphorin W protein which comprises the amino acid sequence shown in SEQ ID NO: 3" or "a gene comprising Semaphorin W DNA which comprises the base sequence shown in SEQ ID NO: 1 or 2" is a gene encoding rat Semaphorin W. Among these genes, the DNA comprising the base sequence shown in SEQ ID NO: 2 corresponds to the open reading frame of the rat Semaphorin W gene shown in SEQ ID NO: 1. These genes may be cloned, as described in Example 3, by screening a cDNA library derived from rat CNS tissues or a genomic library using a probe (for example, a DNA probe having the base sequence shown in SEQ ID NO: 7) prepared on the basis of the sequence of "T09073" found in EST database. Particular techniques